

#### ABSTRACT OF THE INVENTION

A solid generator laser provides device simplicity and fuel regeneration without relying upon highly-corrosive or unstable fuels. The laser system includes a fuel supply system that provides a solid fuel to a laser. The laser processes the fuel products to produce at least a solid waste product and a gaseous waste product. A fuels regeneration system receives the solid and gaseous wastes at a reagent production system to replenish the fuel products in the fuel supply system. Rather than relying upon corrosive fuels such as BHP, then, the laser suitably processes solid peroxide (e.g.  $\text{Na}_2\text{O}_2$ ) and a halide (e.g. hydrogen or deuterium halide) to form a salt, water and singlet delta oxygen that may be used to induce a lasing effect. The processes and structures described herein may be used, for example, with chemical oxygen iodine lasers and the like.